SCANCELL

AT THE FOREFRONT OF IMMUNO-ONCOLOGY

Shares Investor Evening
Novotel London Tower Bridge

17July 2019
LSE: SCLP.L

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SCANCELL IS OPERATING AT THE FOREFRONT OF IMMUNO-ONCOLOGY

THE MARKET

- Expected to exceed US$100bn p.a. by 2022 (source: ResearchAndMarkets.com 30 November 2018)
- Merck and BMS have developed blockbuster checkpoint inhibitor drugs with sales of US$7bn p.a.
- Checkpoint inhibitors prevent tumour cells supressing the immune system
- Competitors worldwide are making huge investments to enter this market opportunity

THE OPPORTUNITY

- Checkpoint inhibitors are applicable only to a minority of cancer patients
- The race is on to find new approaches for complementary therapies to increase the eligible patient population
- Scancell's **IMMUNOBODY®** and **MODITOPE®** cancer vaccine platforms fit the search criteria

CLINICAL STAGE ASSETS

- Four lead products in development
- Phase II and Phase I/II studies in preparation targeting multiple cancer indications

SCANCELL

- Scientific founder Prof. Lindy Durrant
- 23 employees based in Oxford and Nottingham (12 PhDs)
- AIM quoted (SCLP)

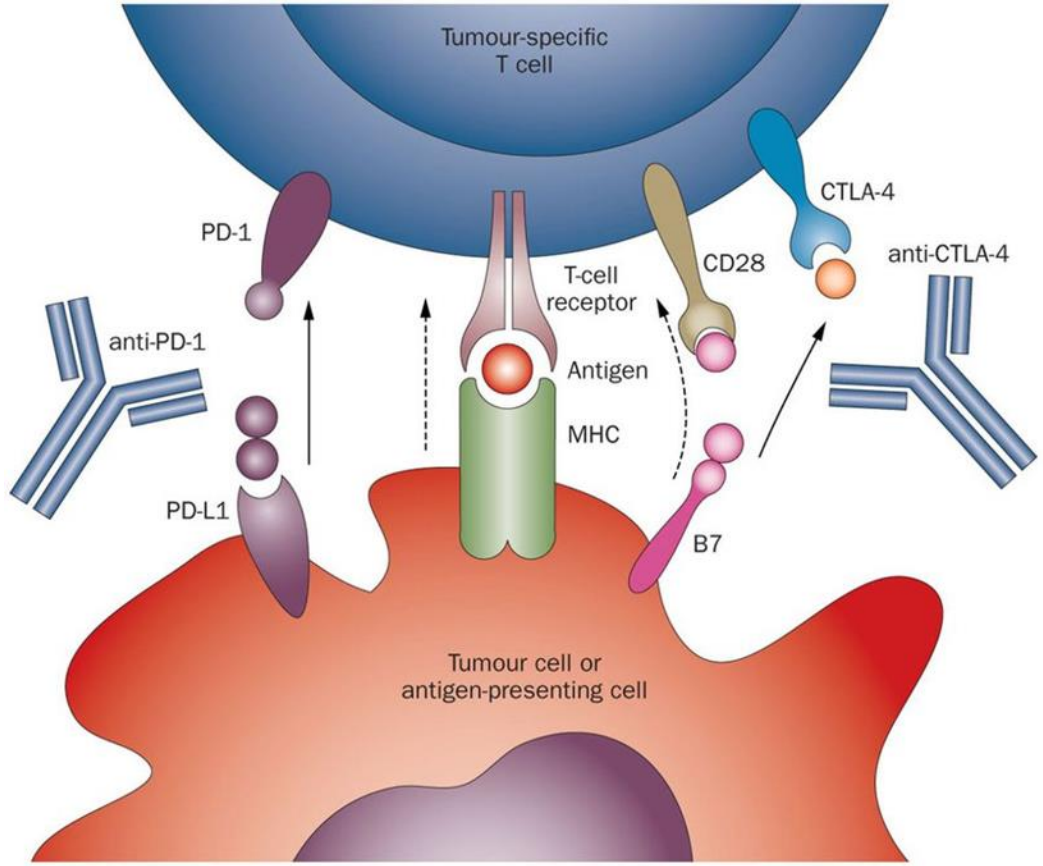
OUR PARTNERS

BIONTECH · CANCER RESEARCH UK · The University of Nottingham · LUNG CANCER FOUNDATION · ISA Pharmaceuticals · ichor medical systems

2 PLATFORMS, 4 LEAD PRODUCTS + MULTIPLE CANCER INDICATIONS

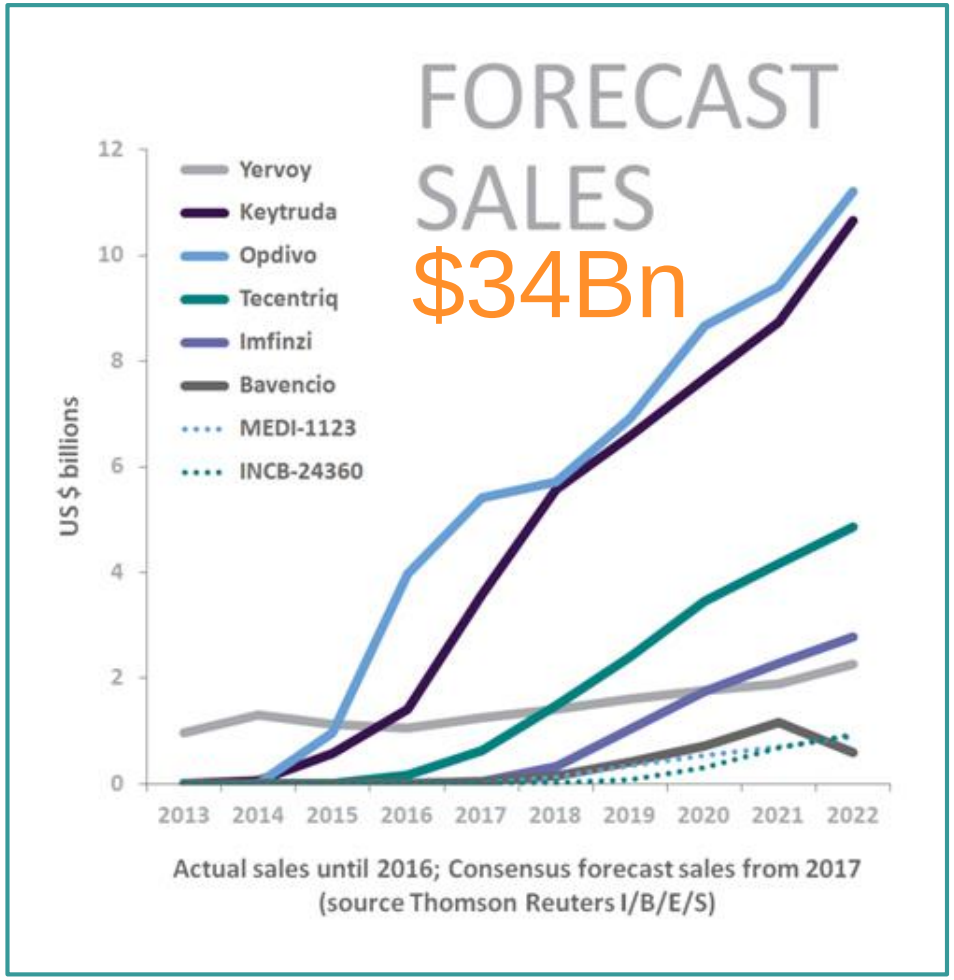
IMMUNE CHECKPOINT BLOCKADE

- Checkpoint inhibitors disrupt the pathways through which tumour cells suppress the immune system (e.g. PD-1 and CTLA-4)
- By inhibiting this immune suppressive pathway it is more likely that T cells will identify and kill the tumour cells (engagement of T-cell receptor)
- Merck's Keytruda and BMS's Opdivo target the protein PD-1
- BMS's Yervoy targets CTLA-4
- Pharma companies worldwide are battling to develop drugs that inhibit the same and different pathways



A SUBSTANTIAL MARKET HAS DEVELOPED IN FIVE YEARS

- The development of immune checkpoint inhibitors was a revolutionary milestone in the field of immuno-oncology
- Approval of checkpoint inhibitors was fast-tracked by the FDA
- BMS's Yervoy was approved by the FDA in 2011 for the treatment of metastatic melanoma followed in 2014 by Merck's Keytruda and BMS's Opdivo also for melanoma
- In 2016 Keytruda was approved for non-small cell lung cancer
- Patient outcomes in the last two years have established checkpoint inhibitors as the primary standard of care for certain types of cancer

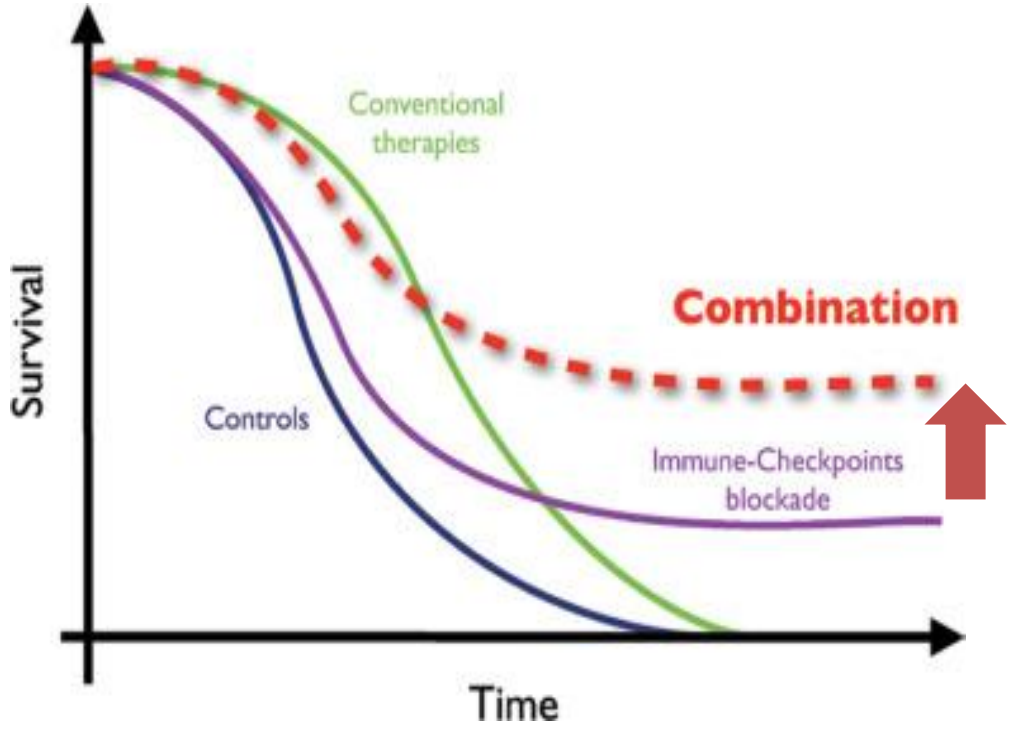


BUT CHECKPOINT INHIBITORS HAVE LIMITATIONS

- They can induce serious side effects
- They are expensive – circa US$110,000 per patient
- Treatment response requires the patient to have sufficient T cells with the capacity to identify, target and destroy the tumour cells
- Consequently response rates and duration of response to monotherapy vary greatly depending on the type of cancer

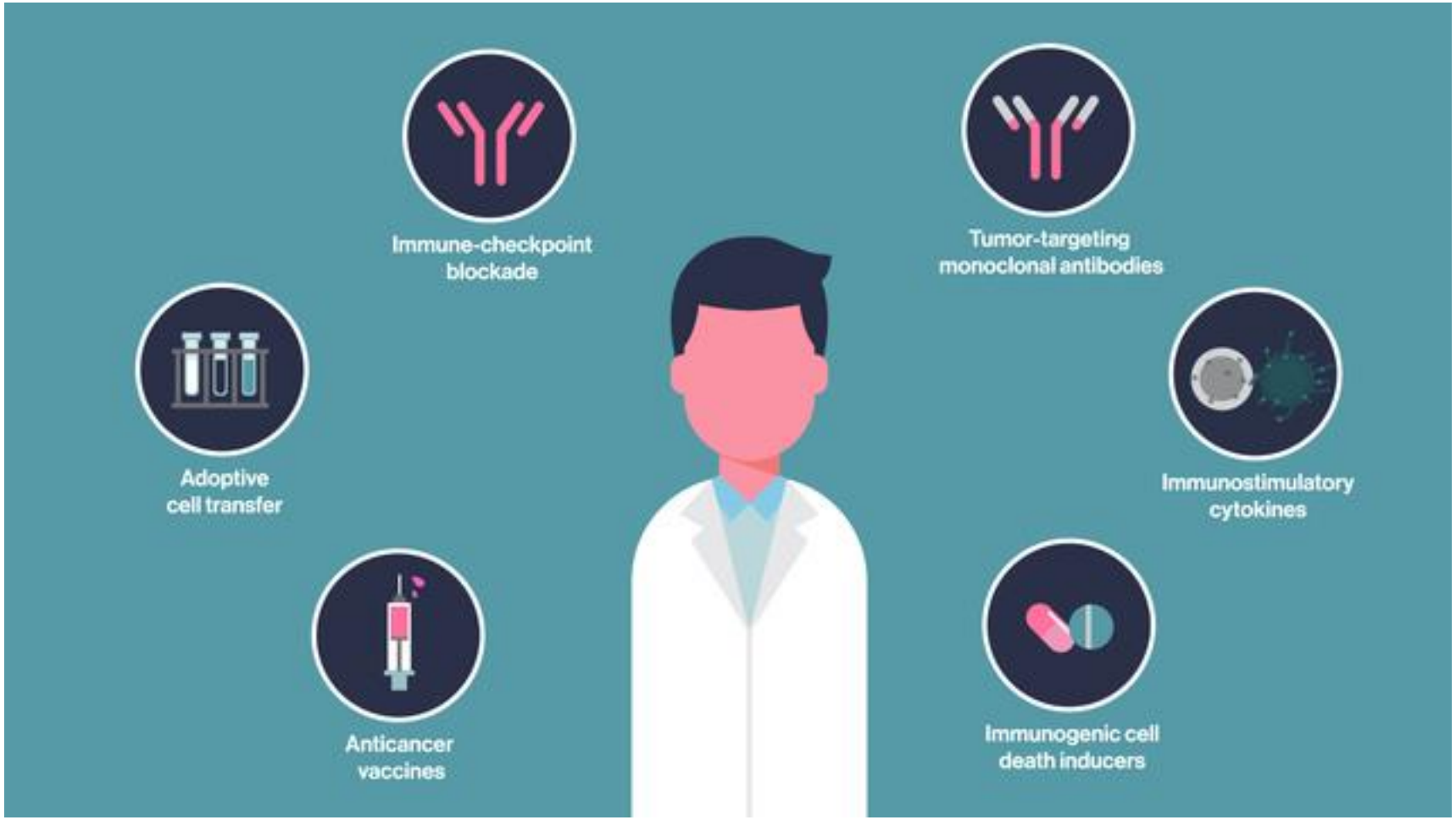
The future of immuno-oncology is in novel combination therapies that:

- Do not increase toxicity
- Do not significantly increase overall cost of treatment
- Provide an increased and durable response
- Address the unmet needs in hard to treat cancers



THERE ARE MULTIPLE IMMUNO-ONCOLOGY APPROACHES

But patient safety, cost and scalability of treatment present substantial challenges



SCANCELL'S CANCER VACCINE PLATFORMS MAY HAVE THE ANSWERS

- Key challenge is to stimulate an effective T cell response to reject or kill the growing tumour
- Most vaccine strategies only stimulate low frequency, low avidity T cell responses that fail to control tumour growth
- Scancell's novel therapies stimulate **high avidity** CD8 and/or CD4 T-cells that efficiently kill tumours

IMMUNOBODY®

- DNA-based platform generates high avidity CD8 T-cells by presenting T-cell epitopes of known cancer antigens through a unique dual mode of action

MODITOPE®

- Modified peptides that generate potent killer CD4 T-cells to target antigens induced by stress-induced post-translational modifications (siPTM vaccines)

- Clinical and pre-clinical studies indicate
  - Favourable safety profile in patients (SCIB1)
  - Potential to address the unmet needs in hard to treat cancers
  - Provide an increased and durable response
  - Low cost of goods compared to cell therapies

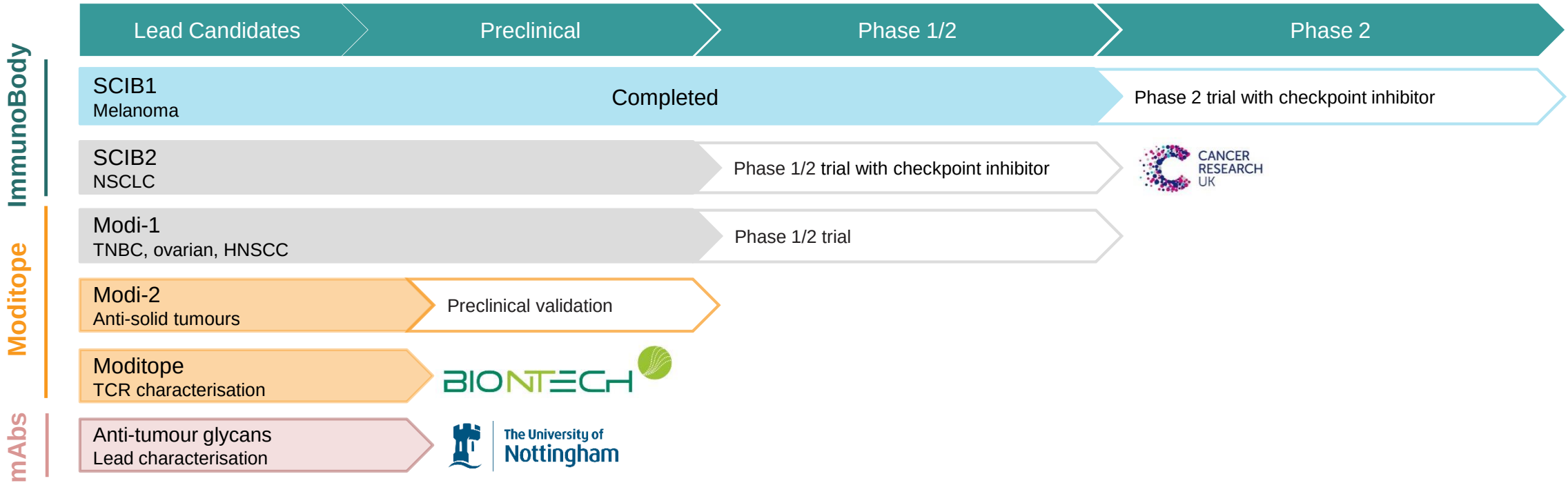
DEVELOPMENT PIPELINE

IMMUNOBODY®

- **SCIB1:** Targets malignant melanoma. Phase 1/2 study completed with strong survival data. Phase 2 trial in patients receiving immune checkpoint inhibitor planned for 3Q CY19
- **SCIB2:** Targets NSCLC. Phase 1/2 trial with immune checkpoint inhibitor to be funded and sponsored by Cancer Research UK (CRUK).

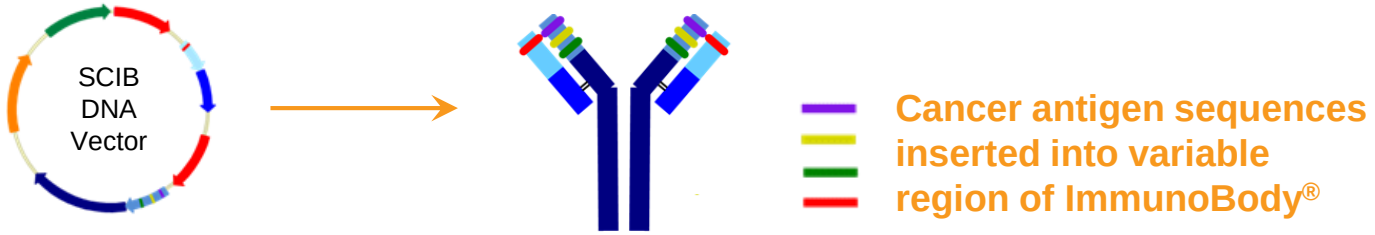
MODITOPE®

- **Modi-1:** Manufacturing process development on track. Phase 1/2 trial including TNBC, ovarian, and head and neck cancer planned for 1H CY20.
- **Modi-2:** Targets multiple solid tumours. Preclinical development of selected epitopes.
- **TCR collaboration:** To clone and characterise T cell receptors against Modi-1 specific epitopes.



THE IMMUNOBODY® PLATFORM

- Proprietary patent protected platform
- Several cancer associated T cell epitopes are engineered into a human antibody framework to make a genetic antigen/antibody complex



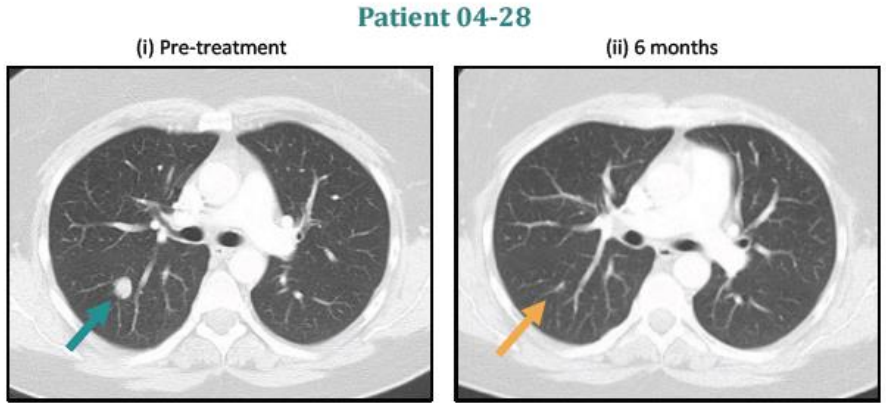
- Novel dual mechanism of action based on **direct** and **cross-presentation**
- SCIB1 for melanoma (**TRP-2/gp100 melanoma associated antigens**): Phase 1/2 clinical trial complete, Phase 2 planned
  - delivered as a DNA plasmid using electroporation
- SCIB2 for lung cancer (**NY-ESO-1**): Clinical development partnership with CRUK
  - nano-particle delivery evaluated as an alternative mode of delivery

SCIB1 IN PATIENTS WITH LATE STAGE MELANOMA

SCIB1 has an excellent safety profile with no dose-limiting toxicities and no serious adverse events related to study drug or delivery device

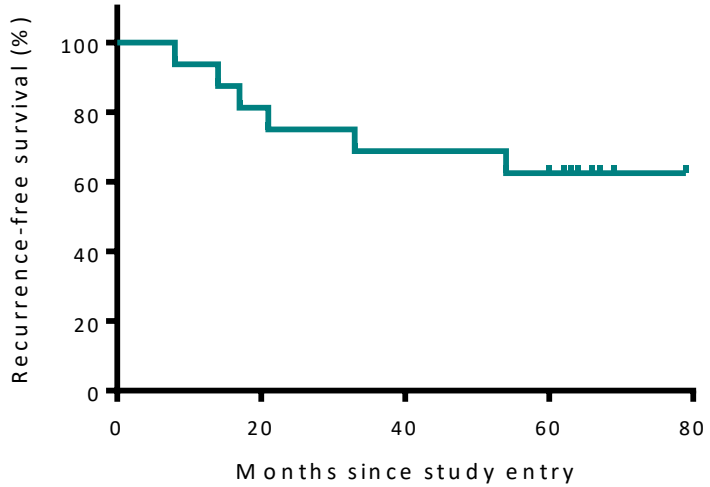
TUMOUR RESPONSE

Patient with tumour received 8 mg SCIB1 and showed a marked reduction in size of detectable lung lesions

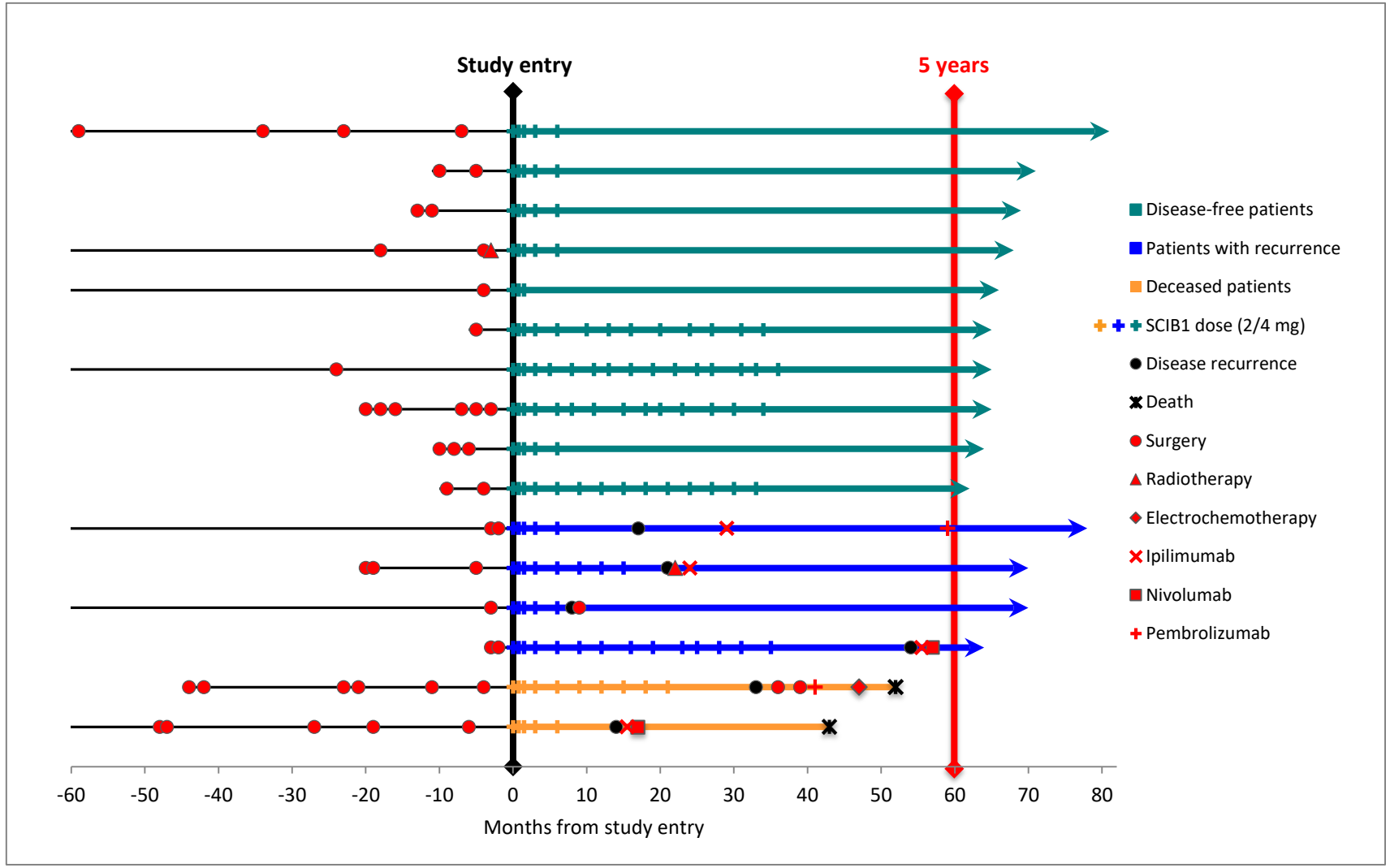


SURVIVAL IN RESECTED PATIENTS

- Overall survival with SCIB1 treatment superior to historical survival rates
- 14 of 16 resected patients receiving 2-4 mg doses have survived for more than 5 years (February 2018)
- Melanoma recurrence rates are lower in SCIB1-treated patients than historical controls



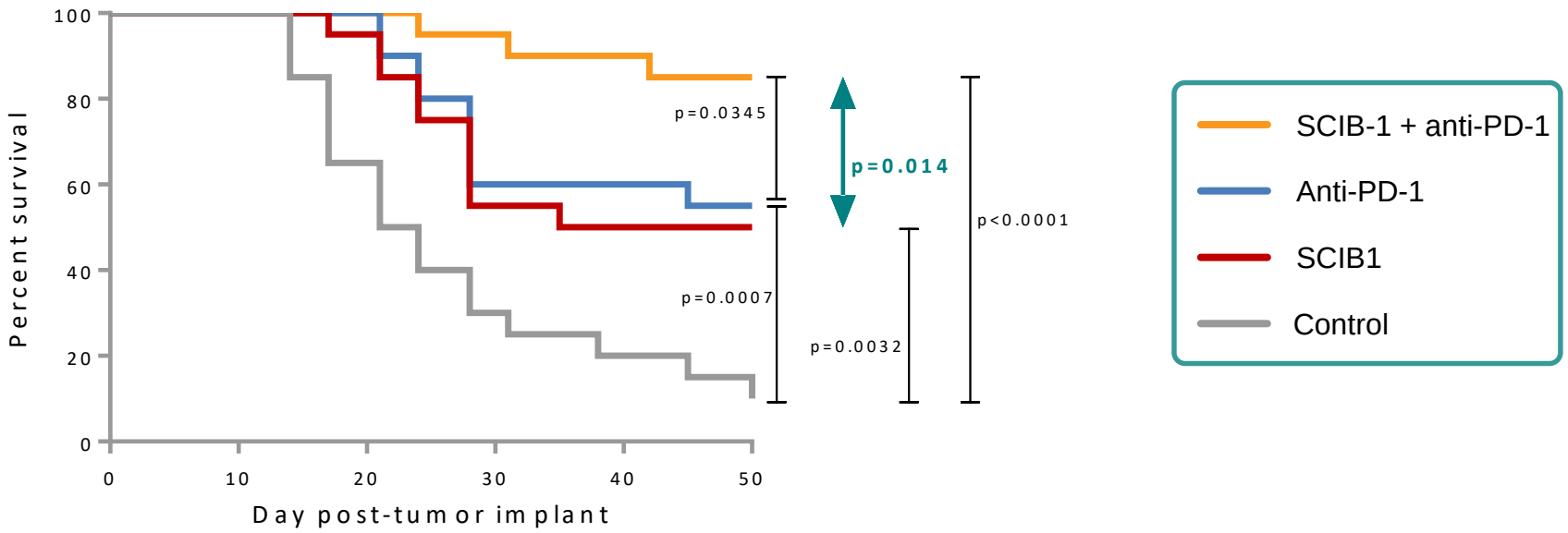
PATIENTS WITHOUT TUMOUR PRESENT AT STUDY ENTRY



SCIB1 BOOSTS IMMUNE CHECKPOINT THERAPY

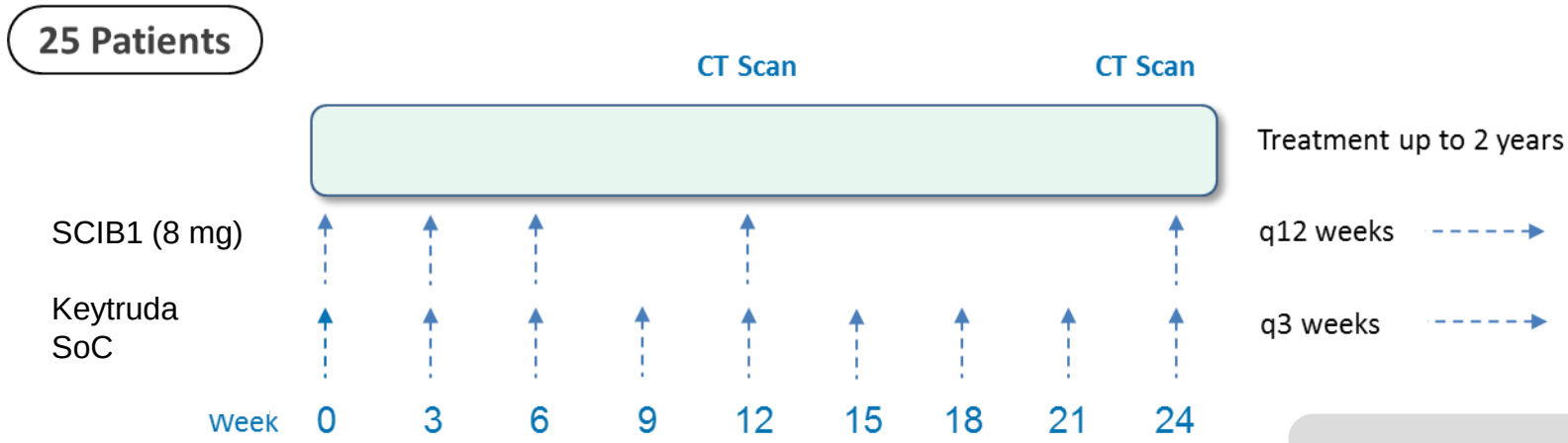
IN A MOUSE MELANOMA MODEL, SURVIVAL RATES WERE SIGNIFICANTLY BOOSTED WHEN ANTI-PD-1 THERAPY WAS COMBINED WITH SCIB1 TREATMENT

- Survival rates for SCIB1 ImmunoBody® monotherapy ≈ anti-PD-1
- Monotherapy viable option for resected melanoma patients
- Combination therapy resulted in an 85% survival rate
- SCIB1 also upregulates PD-L1 expression and memory response



PATIENT POPULATION

- Histologically confirmed, unresectable AJCC stage III or stage IV melanoma
- No prior systemic treatment for advanced disease
- Suitable for treatment with Keytruda (pembrolizumab), with measurable disease
- Part 1 safety run-in (n=6); Part 2 additional 19 patients; total = 25 patients



Trigger to advance development ≥ 12 RECIST responses in 25 patients

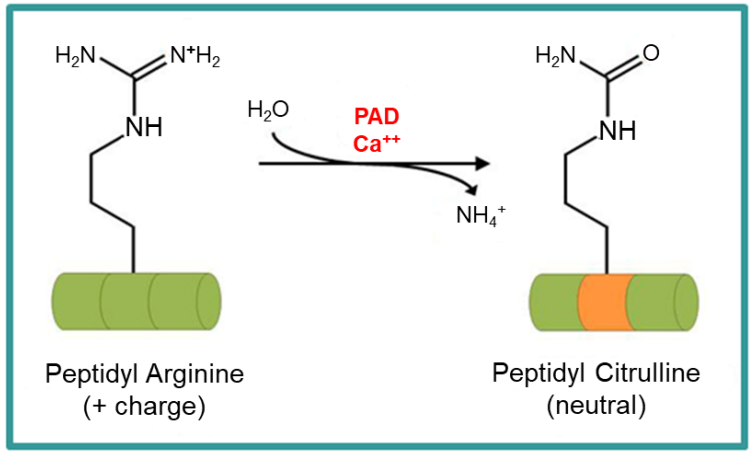
Assumptions

- Response rate to Keytruda = 30%
- Response rate of interest for combination = 55%

Stress-Induced Post-Translational Modifications (siPTM)

- One such modification involves the process of **CITRULLINATION**
  - The alteration of proteins due to enzymatic conversion of arginine residues to citrulline
  - Citrullination occurs as a result of a degradation and 'recycling' process called **autophagy** that is induced in stressed cells, including cancer cells
  - Citrullinated epitopes presented on **MHC class II**
  - Patent awarded in Europe, Japan, China, Australia; some claims allowed in the US and broader claims under review

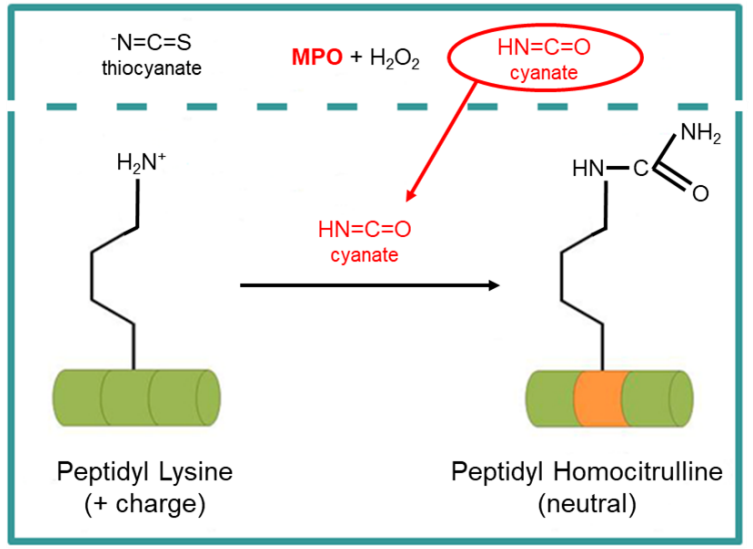
Modi-1



PAD = peptidylarginine deiminase

- Another modification involves the process of **HOMOCITRULLINATION**
  - The alteration of proteins due to conversion of lysine residues to homocitrulline
  - Homocitrullination occurs as a result of MPO released by myeloid-derived suppressor cells (MDSC) which converts thiocyanate to cyanate in the presence of H_2O_2
  - Cyanate diffuses into tumour cells and results in spontaneous homocitrullination of cytoplasmic proteins
  - These proteins are degraded and homocitrullinated epitopes presented on **MHC class II**
  - Patent filed with broad claims in cancer and composition of matter for any use of homocitrullinated peptides

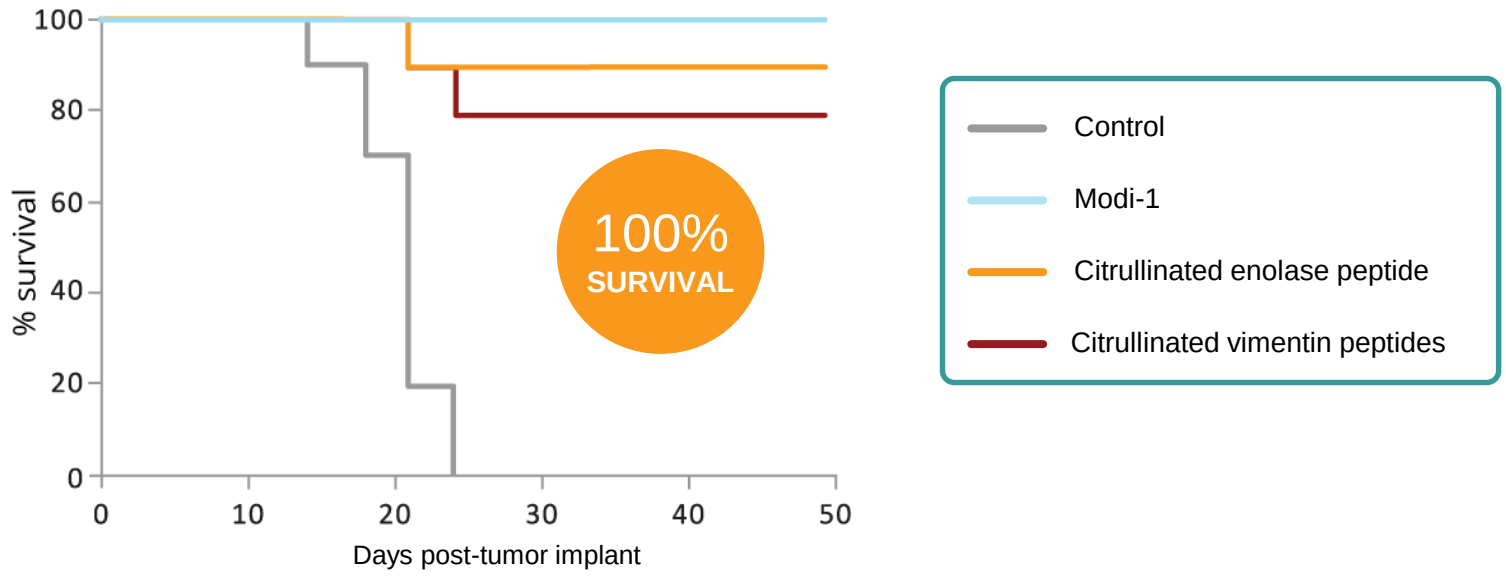
Modi-2



MPO = myeloperoxidase

Modi-1

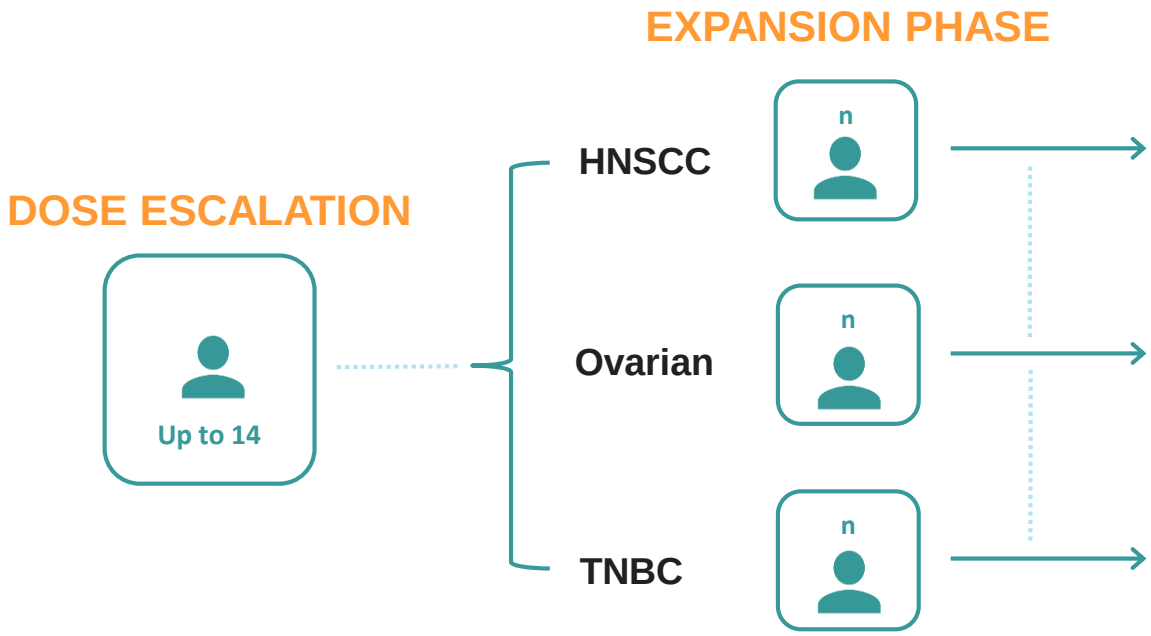
- Consists of:
  - Two citrullinated vimentin peptides (Vim-1 and Vim-2)
  - One citrullinated enolase peptide (Eno-1)
- Vimentin and enolase targets are highly expressed in triple negative breast cancer (TNBC) (90%), ovarian cancer (95%), sarcoma (100%) and many other solid tumours with high unmet medical need
- Modi-1 induced potent anti-tumour responses in mice with established melanoma (B16)
- **A single immunization of Modi-1 resulted in a 100% survival rate in animal models**



PROPOSED MODI-1 FIRST IN HUMAN STUDY

PATIENT POPULATION

- Patients with tumours with high vimentin or enolase expression (e.g., head and neck cancer (HNSCC), triple negative breast cancer (TNBC), ovarian cancer)
- Failed or intolerant to standard of care therapies



Dosing regime

Dose escalation: 80, 400 µg
Weeks 1, 3, 6, 12 and 24
Patients may continue to receive Modi-1 at 12-week intervals up to 2 years

CLINICAL ADVISORY BOARD

CHAIRMAN: **PROF ROBERT COLEMAN**	**Emeritus Professor of Medical Oncology at Weston Park Hospital and the University of Sheffield**
PROF CHRISTIAN OTTENSMEIER	**Professor of Experimental Cancer Medicine at the University of Southampton**
PROF POULAM PATEL	**Professor of Clinical Oncology at the University of Nottingham and Honorary Consultant Medical Oncologist at the Nottingham University Hospitals NHS Trust.**
PROF IAIN MCNEISH	**Professor of Oncology and Head of the Division of Cancer within the Department of Surgery and Cancer, Imperial College London**
PROF DAVID MILES	**Lead Clinician for breast cancer at Mount Vernon Cancer Centre**
PROF STEPHEN CHAN	**Director of Clinical Trials in Breast Cancer and Gynaecological Cancer at Nottingham University Hospital**

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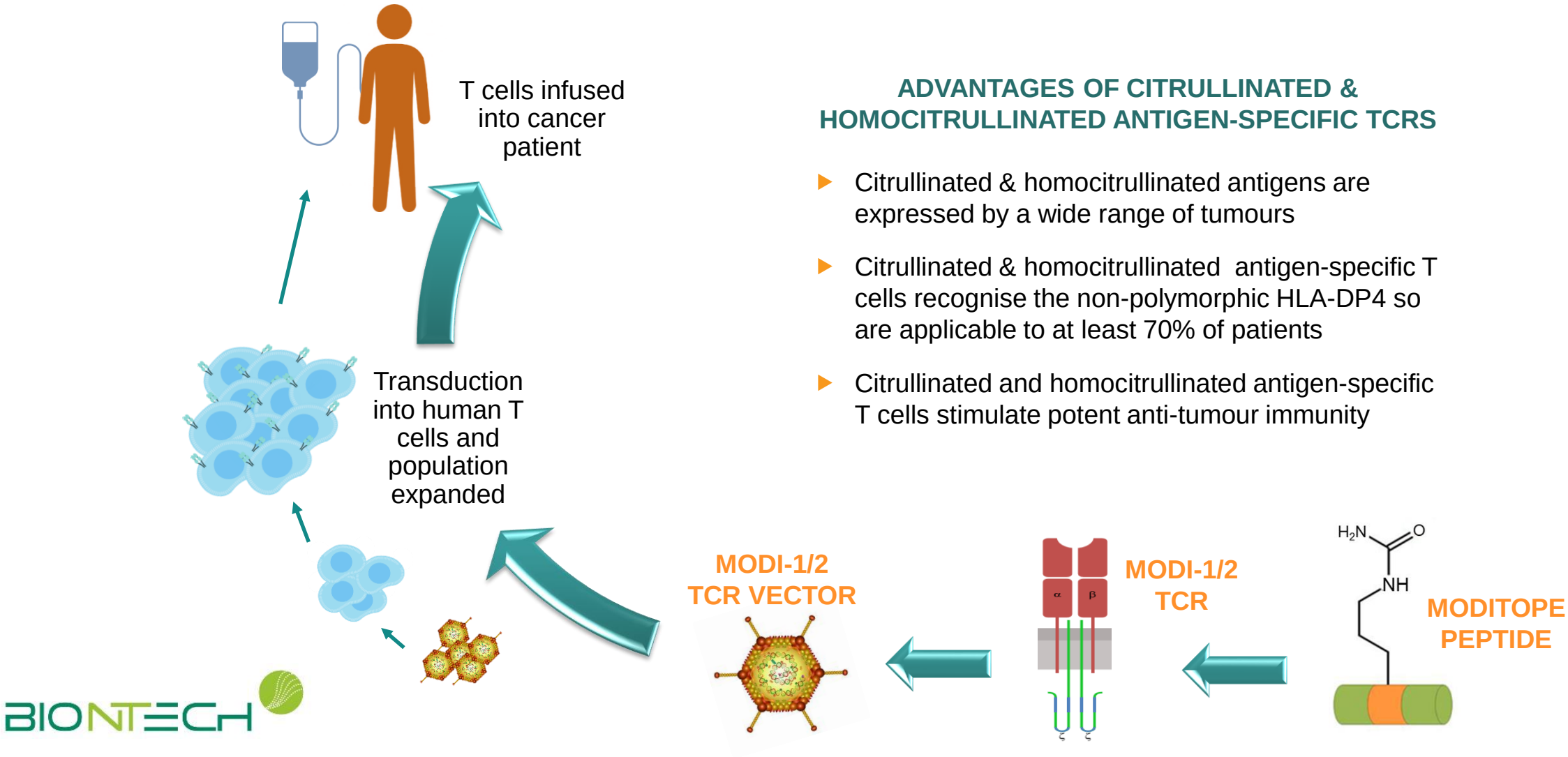
MODITOPE® MAY REPRESENT A NEW FRONTIER IN ADOPTIVE CELL THERAPY



ADVANTAGES OF CITRULLINATED & HOMOCITRULLINATED ANTIGEN-SPECIFIC TCRS

- Citrullinated & homocitrullinated antigens are expressed by a wide range of tumours
- Citrullinated & homocitrullinated antigen-specific T cells recognise the non-polymorphic HLA-DP4 so are applicable to at least 70% of patients
- Citrullinated and homocitrullinated antigen-specific T cells stimulate potent anti-tumour immunity

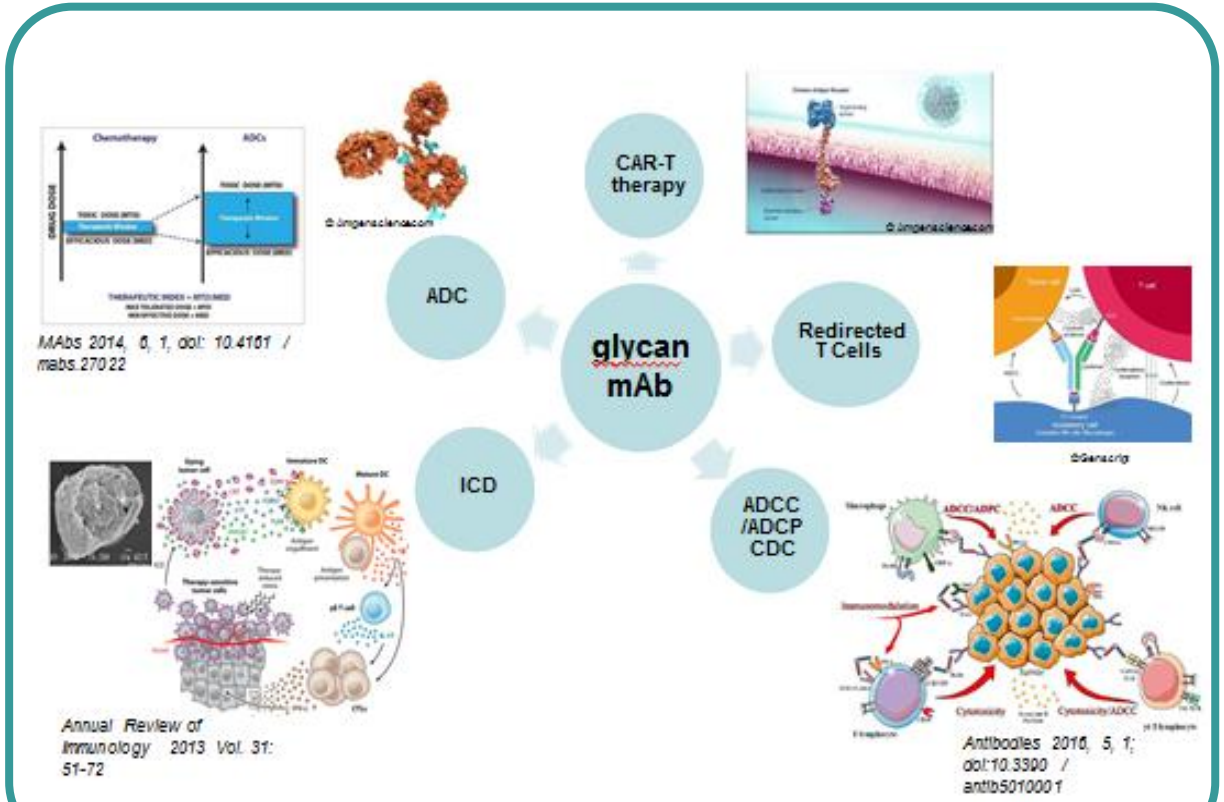
INTERNAL PROJECTS ADVANCED AND EXPANDED

MODITOPE®

- Research collaboration to develop T-cell based therapies established with BioNTech
- Licence agreed with ISA Pharmaceuticals for development of Amplivant® Modi-1 conjugate therapy
- GMP production of Modi-1/Amplivant® conjugates initiated and formulation underway
- Modi-1 clinical study planned to start in 1H CY20
- Homocitrullinated peptides under evaluation for inclusion in new Modi-2 vaccine targeting multiple solid tumours
- Strong patent protection

Monoclonal Antibodies (mAbs) are a well validated modality in the treatment of cancer

- 5 anti-glycan mAbs FG88, FG27, FG129, FL134 –unique direct cancer targets
  - Ultraspecific to unique tumour associated glycans
  - IgG mAbs with subnanomolar functional affinity
  - Induce potent ADCC/ADCP and CDC
  - FG2811 recognises and stimulates TSCM –agonist mab
- Unique method to enhance direct killing – could apply to any mAb
- Rapidly internalise and are good carriers for drugs (ADC)
- Potential targets for redirected T cell and CAR-T therapy



This technology is unique and clearly differentiated…

ANTICIPATED NEWSFLOW + MILESTONES

IMMUNOBODY®

SCIB1

- SCIB1/checkpoint inhibitor Phase 2 study in late stage melanoma
  - Commencement of the Phase 2 trial utilising Ichor TriGrid v2.0 electroporation device
  - Activation of study centres and interim data anticipated during 2020

SCIB2

- CRUK development activities for initiation of SCIB2 Phase 1/2 study for NSCLC

MODITOPE®

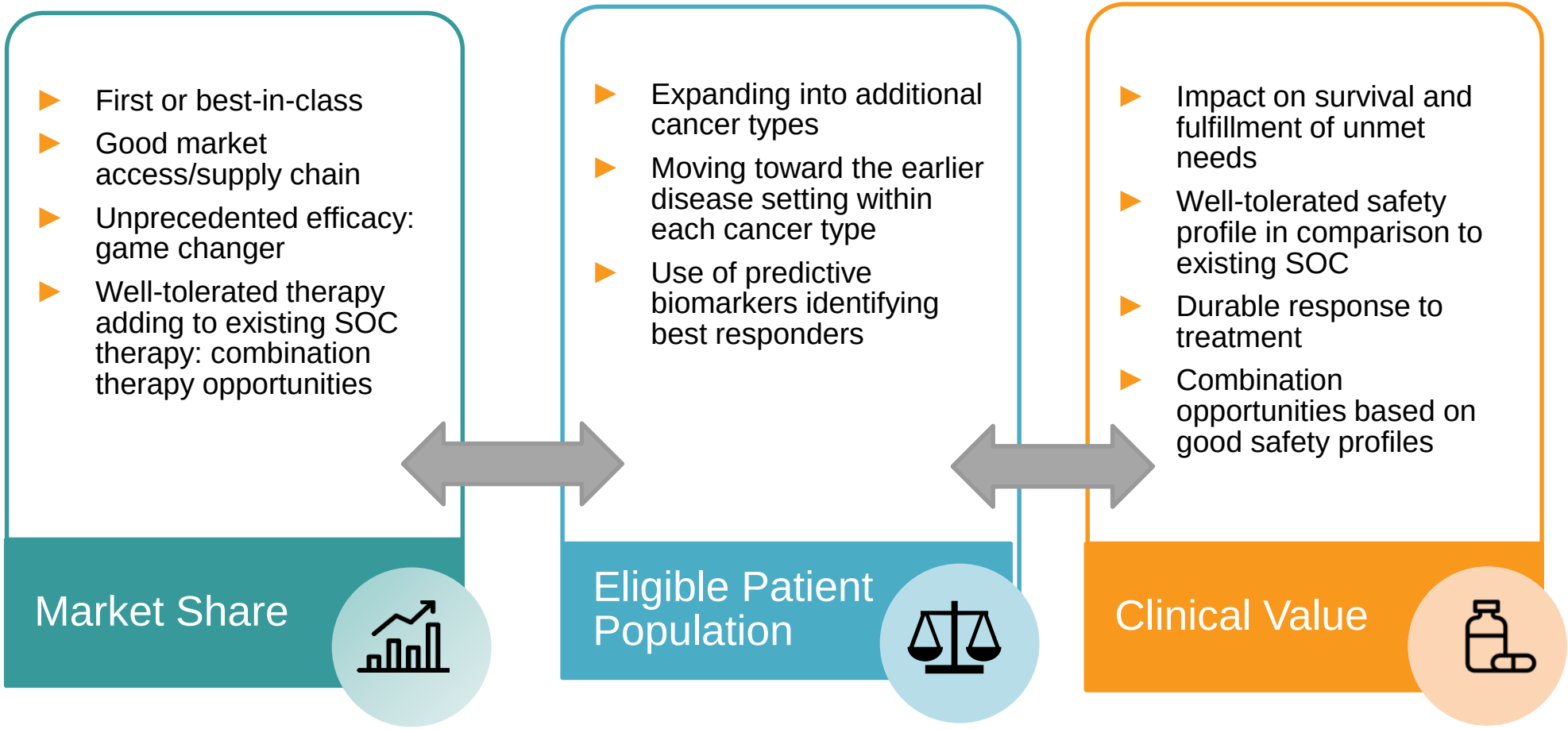
Modi-1

- Preparation for the First-In-Human study with Modi-1 in patients with TNBC, ovarian cancer and HNSCC planned to start 1H CY20
- Identification of Modi-specific TCRs in collaboration with BioNTech

Modi-2

- Pre-clinical development for multiple solid tumour indications
- Extension of patent portfolio

COMMERCIAL SUCCESS IN THE ONCOLOGY MARKET



SCANCELL HAS MULTIPLE COMMERCIAL OPPORTUNITIES

ImmunoBody®/Moditope® vaccines

- SCIB1 clinical data showing efficacy and safety
- Potential synergy with checkpoint inhibitors will validate the ImmunoBody® platform and ability for future commercialisation
- Relatively low cost of goods/competitive pricing vs. cell therapies
- Moditope® 'first in class' (siPTM)
- Broad indication/eligible patient population
- Modi-1 clinical trial to validate Moditope® platform leads to value inflection and potential deal flow

T cell receptors (TCR)

- T cells recognising siPTMs could be utilised for adoptive cell transfer
- Novel mechanism; mediated by CD4 TCRs
- Broad applicability as HLA type expressed by 70% of the population
- Personalised therapy approach
- Many large pharma/biotech companies focussed on adoptive T-cell therapies; opportunities for potential licensing of Moditope® TCRs

Anti-glycan mAbs

- Highly specific direct killing antibody available to license
- New direct killing antibody engineering platform available for license

Top 3 Pre-Commercial Oncology Licensing Deals Per Year (2015-8) by Upfront Value

Year	Rank	Company	Deal Partner/ Product Source	Product or Technology	Development Phase	Upfront (MM USD)	Milestones (MM USD)	Total (MM USD)
2018	1	BMS	Nektar	NKTR-214	3	1,000	1,800	3,650
	2	Gilead	Sangamo	ZFN gene editing	Discovery	150	3,000	3,150
	3	Genentech	Affimed	NK cell engager	Discovery	96	4,950	5,046
2017	1	Celgene	BeiGene	BGB-A317	2	413	980	1,393
	2	Bayer	Loxo	Larotrectinib	2	400	1,200	1,600
	3	JNJ	Legend	LCAR-B38M	1/2	350	Undisclosed	N/A
2016	1	Celgene	Jounce	JTX-2011	PC	261	2,300	2,561
	2	Baxalta	Symphogen	mAb mixtures	Discovery	175	1,600	1,775
	3	Novartis	Xencor	XmAb14045	PC	150	2,410	2,560
2015	1	Celgene	Juno	JCAR017	1/2	1,000	0	1,000
	2	Sanofi	Regeneron	REGN2810	1	640	375	1,105
	3	Celgene	AstraZeneca	Durvalumab	3	450	0	450

Source: Evaluate Pharma, Cello Health BioConsulting Analysis

immuno-oncology assets/technology

HIGHLIGHTS FOR 1H CY19

Operational

- **Progress towards SCIB1 Phase II trial**
  - MHRA approval for UK arm of study (April)
- **Modi-1 manufacturing and toxicology update**
  - Update on GMP manufacturing and progress towards final product for clinical testing and toxicity programme (May)
- **Strengthened team and Clinical Advisory Board**
  - Head of Research and Head of Manufacturing (January)
  - Established Clinical Advisory Board (May)
- **Cancer Research UK SCIB2 partnership update**
  - Nano-particle delivery of SCIB2 preclinical results (May)
- **Expanded IP portfolio**
  - US patent grant for protection of Modi-1
  - EU patent grant for FG88 mAb

Financial

- **Vulpes investment and Board position**
  - In June, Scancell raised gross proceeds of £3.88m by the issue of 77.6m new ordinary shares to Vulpes Life Sciences Fund
  - Martin Diggle, Co-Founder and Portfolio Manager of Vulpes Investment Management, appointed to the Company's Board of Directors as a Non-Executive Director.

OUTLOOK

2 CANCER VACCINE PLATFORMS, 4 LEAD PRODUCTS + 5 CORE ACTIVITIES

CLINICAL DATA	▶ Generate meaningful clinical data to address unmet needs: clinical read-outs (SCIB1 Phase 2 & Modi-1 Phase1/2 pt 1) anticipated within next 2 years
PIPELINE EXPANSION	▶ Extend utility of Moditope® platform beyond Modi-1 and Modi-2 in association with key industry players e.g., TCRs ▶ Lead generation and optimisation of anti-glycan mAbs
TECHNOLOGY PARTNERSHIPS	▶ Evaluate and implement enabling technologies e.g., nano-vesicle delivery (Immunobody®), and adjuvant (Moditope®), to aid and de-risk development
CLINICAL PARTNERSHIPS	▶ Establish relationships with key opinion leaders and clinical networks to ensure utility in clinical practice e.g., CRUK, CAB, and patient advocacy groups (e.g. Addario)
INDUSTRY PARTNERSHIPS	▶ Explore synergies with large Pharma/Biotech companies in identifying combination therapies for optimal outcomes e.g., checkpoint inhibitors

BIONTECH

The University of Nottingham

ichor medical systems

ISA Pharmaceuticals

CANCER RESEARCH UK

LUNG CANCER FOUNDATION

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